Route-Clearance Operations

By Captain John K. Leighow

Current Army doctrine is too limited in its coverage of route-clearance operations. Since World War II, a steady increase in casualties from mine warfare suggests that our doctrine lacks the necessary scope and that we need training to successfully conduct combined arms route-clearance operations. Casualties from landmines increased from 4.4 percent in World War II to 33 percent in the Vietnam War. Twenty percent of the U.S. casualties during Desert Storm and 26 percent during Operation Restore Hope were caused by mines. While mine technology has surged, countermine capability is 30 to 50 years old.

Mine warfare is an important part of the opposing force (OPFOR) tactics, and much of it is concentrated along friendly lines of communication (LOC). For battlefield success, Army units must clear their LOC of any obstacles and enemy activity that disrupts circulation of forces and material.

Shortfalls in technology, doctrine, and training have all contributed to the limited success of route-clearance operations at the Joint Readiness Training Center (JRTC). Most units training here fail to recognize route clearance as a combined arms operation, and they routinely attempt to clear their LOC without conducting preliminary planning, task organizing, rehearsing, and battle-tracking procedures.

The "Thunder Run" is the most common route-clearance technique observed at the JRTC. Units roam the roads at 15 or more miles per hour looking for mines—and detect them when a vehicle explodes. U.S. forces cannot accept this approach. As a fighting force, we must develop ways to retain our mobility. This article identifies some of the problems in route-clearance operations and provides options to help ensure successful passage of the force.

Predictive Intelligence

By incorporating intelligence preparation of the battlefield (IPB) and mission, enemy, terrain, troops, and time available (METT-T) processes into route-clearance operations, units can predict what an enemy may do to disrupt their main supply routes (MSRs). The JRTC experience shows that units failing to conduct route-clearance procedures lose their flexibility and initiative during operations. Sun Tzu wrote, "Know your enemy, know yourself, your victory will never be endangered. Know the ground, know the weather, your victory will then be total." The IPB and the engineer battlefield assessment (EBA) provide ideal methods for establishing a

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
AUG 1995		**00-00-1995 to 00-00-1995**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Route-Clearance Operations	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **U.S. Army Engineer School,14010 MSCoE Loop BLDG 3201, Suite 2661,Fort Leonard Wood ,MO,65473-8702**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**8**	

minefield or ambush situation template. After the S2 and engineer identify the most probable threat sites, the S2 should designate them as named areas of interest (NAIs) for focusing reconnaissance efforts. Engineers trained to conduct enemy obstacle reconnaissance may work with scouts and infantry to confirm the presence or absence of ambushes and mines—the primary threats to battlefield circulation.

Ambushes. Small-arms fire is the number one killer on the JRTC battlefield. Several three- to five-man teams with small arms can effectively neutralize a brigade convoy operation through well-placed ambushes. They typically occur in areas of limited trafficability that provide the enemy with effective fields of fire, cover, and concealment.

Mines. These are the poor man's weapon of choice and the eternal sentry. Mines may be located almost anywhere and are devastatingly effective because soldiers do not understand their capabilities or observe their presence. Today's mines have blast-resistant fuses or use magnetic or seismic signatures to initiate the blast. This technology is far superior to the first-generation of pressure-fused mines still common in the U.S. inventory.

A favorite mine-warfare technique is to "reseed" a minefield along an MSR after a vehicle or a sweep team has cleared the road. The process, which takes about 30 minutes to complete, has a profound effect on the opposing force's mobility. As the force loses equipment and personnel to reseeded mines, the brigade and battalion task forces divert additional combat power to convoy escort. This may cause the brigade to lose the initiative. With these threats in mind, let's consider a more effective approach to route-clearance operations.

Minefield indicators (Figure 1) offer a visible signature that can help units confirm or deny minefield locations. They also serve as a starting point for finding the enemy and/or his cache sites. At the JRTC, the OPFOR can cache mines from 50 to 500 meters from any given minefield.

Planning Considerations

Planning and conducting route clearance during the initial phase of combat operations ensures the survival of follow-on forces. According to FM 20-32, *Mine/Countermine Operations*, minefield clearance is conducted in a relatively safe environment and is "usually performed after the breaching operation by follow-on engineer forces or at any time in a friendly area of operations where an obstacle is a hazard or hinders movement."

Route-clearance operations are similar to breaching operations; therefore, commanders and staffs should plan and coordinate breaching fundamentals to suppress, obscure, secure, and reduce the obstacles. Task organizing for route clearance is also similar to that required for breaching operations. The assault force becomes the security element, the breach force becomes the sweep element, and the support force remains the same. FM 90-13-1, *Combined Arms Breaching Operations*, provides guidance for planning breaching operations and insights that apply to route-clearance operations.

Minefield Indicators

- Damaged vehicles
- Dead animals
- Avoidance by the local population
- Signs of digging
- Signs of concrete removal
- Disturbances in a road, such as holes or grooves
- Boxes or parcels placed along the road/shoulder
- Parked vehicles or bicycles without operators
- Wire on the road surface or extending onto the shoulders
- Evidence of vegetation disturbance along shoulders
- Evidence of mine-peculiar supplies such as wrenches, shipping plugs, wrapping paper or safety collars from fuses
- Posted signs that covertly alert the local population to the presence of mines
- Observation of disturbances in tire tracks

Figure 1

The significant difference between breaching and clearing operations is that breaching usually occurs during an attack, under enemy fire, to "project combat power to the far side of an obstacle." Route clearance focuses on opening LOC "to ensure the safe passage of combat and support organizations" within an area of operation. Planning route-clearance operations, like breaching operations, requires extensive coordination and the use of all available assets.

Planning considerations for a combined arms route-clearance operation using the Battlefield Operating Systems include—

Intelligence

- Focus IPB to identify high-threat areas, such as chokepoints, bridges, culverts, tunnels, and intersections. Identify the key terrain and direct-observation and ambush sites. Identify probable mine locations as NAIs for reconnaissance focus.
- At the battalion level, maintain a mine-incident map and chart to facilitate pattern analysis. Compare mine incidents to the situation template and adjust accordingly.
- Coordinate overflight by unmanned aerial vehicles and attack/scout helicopter teams to provide daily intelligence updates. Film the route with aviation assets, if possible.
- Provide intelligence updates on mine-hazard areas to company and convoy team leaders.
- Establish liaison between the host nation, nongovernment organizations, and special operations forces for mine-awareness training and intelligence collection.

Maneuver

- Clear and secure the flanks (at least 100 meters in forested areas) and the far sides of suspected and known obstacles before marking and clearing them. Identify and clear potential sniper positions before clearing obstacles.
- Provide overwatching fire for the sweep team.
- Provide scout weapons teams for route overflights and security.
- Provide security for the cleared route.
- Provide aviation assets that are OPCON to the route-clearance commander.

Fire Support

- At the battalion level, position mortars to ensure continuous coverage of the operation.
- Prepare to cue the Q36 radar for counterbattery fire on enemy indirect-fire systems.
- Prepare to discharge nonlethal fires initially and then suppressive fires along the route on reported and suspected obstacle locations and sniper positions. Prepare fires within the tactical rules of engagement.
- Ensure that the route-clearance team has a fire-support coordinator.
- Ensure that priority targets shift in conjunction with movement on the MSR.
- Plan smoke on each target.
- Ensure that areas of control and responsibility are well understood.
- Establish a plan to clear fires.

Mobility/Survivability

- Conduct EBA in conjunction with IPB of routes.
- Provide clearing and sweep teams for the route according to FM 20-32, Chapter 10.
- Provide detailed obstacle intelligence on minefields. Include mine descriptions, obstacle composition, and enemy actions or techniques used during obstacle emplacement.
- Conduct a route reconnaissance to update map information.
- Conduct deliberate minesweeping operations after visually identifying an obstacle. Continue the mine sweep 200 meters beyond the known obstacle location.
- Ensure that all mines and obstacles are reported, marked, and cleared to facilitate unimpeded movement.
- Standardize all lane-marking materials and techniques.

Combat Service Support

- Designate one person to plan support for the route-clearance mission.
- Plan both air and ground casualty evacuation.
- Provide military police, preferably with explosive-sniffing dogs, to help with route clearance and security for convoys during and after clearing operations.
- Provide a medical team, with one or two ambulances, to accompany the route-clearance team.
- Plan for resupply during movement.
- Consider constructing static security points along the routes.
- Consider force-protection measures, such as wearing flak vests and hardening vehicles with sandbags.
- Plan for recovery assets during movement.
- Designate a movement-control element for follow-on forces.

Command and Control

- Plan centralized (brigade-level) or decentralized (battalion task-force-level) route-clearance operations according to METT-T.
- Designate an individual to be in charge of the entire operation and ensure that sufficient resources (communications, fire support, maneuver, and casualty evacuation) are available to accomplish the mission.
- Provide that individual with intelligence on his route and area of responsibility. Furnish the planning time, a proper task organization, and the extent of his area of operation or responsibility.
- Designate a controlling, coordinating, and supporting headquarters for route movement.
- Ensure that the tasked unit has a clear mission, intent, and end state. For example, will the unit clear only the road width; clear the entire route width including the shoulders; or clear, maintain, and secure the route?
- Determine routes with definable start and end points. Fix clearance responsibility between brigade- and battalion-level assets.
- Establish clearly identifiable checkpoints along routes to control traffic and monitor route-clearance progress.
- Coordinate with adjacent units as necessary. If the operation is conducted at the brigade level, coordinate additional support forces with the unit that owns the surrounding terrain.
- Track the progress and integrate it into the maneuver/combat service support plan.
- Ensure that ground commanders maintain communications with indirect-fire systems, scout weapons teams, higher headquarters, and adjacent units.
- Coordinate with host nation and nongovernment organizations.

- Designate a reserve that is at least platoon-sized and is either mechanized or air-assault capable.

Route-Clearance Methods

Units currently use the route-clearance method described in doctrine manuals—linear route clearance. With this method, sweep and security teams begin their route clearance at Point "A" and complete it at Point "B" (see Figure 2). At the JRTC, many route-clearance missions do not specify the location of start or end points, thus causing confusion between the planners and the executors. Linear route clearance is effective and popular, but it is not the most secure method to use in a nonpermissive environment. Two other route-clearance options are available: the combat clearance and the combat route-clearance methods.

Combat Clearance Method (Figure 2). FM 20-32, Chapter 13, describes combat clearance operations. While route-clearance operations focus on a specific route, combat clearance operations focus on an area or areas along a route. These are the suspected high-threat areas identified by the IPB and the EBA. The sweep force, composed of a mix of maneuver and engineer forces, secures and sweeps these NAIs. Combat forces then patrol the route to ensure that it remains secure and sweep the surrounding areas for caches if mines are present.

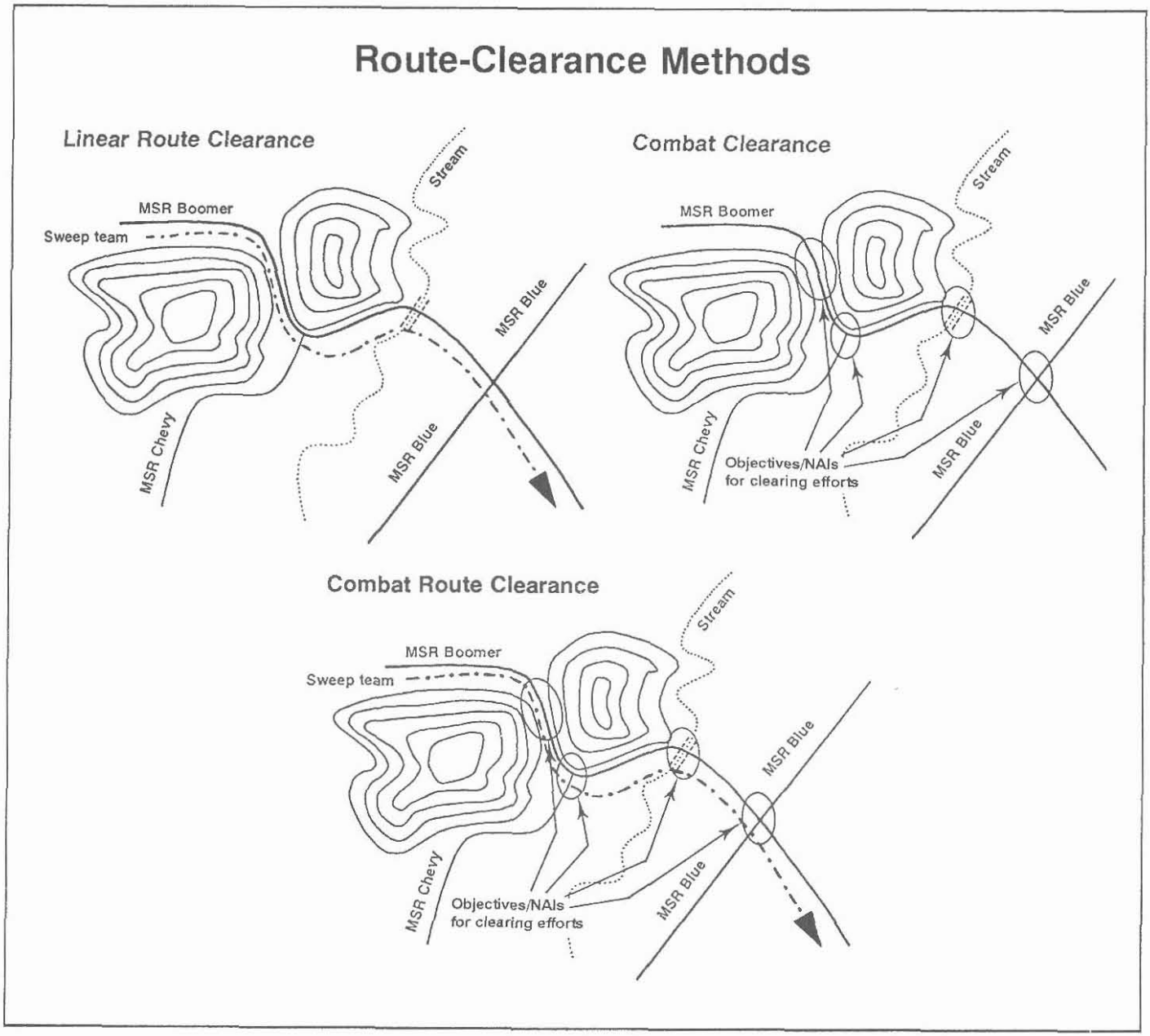

Figure 2

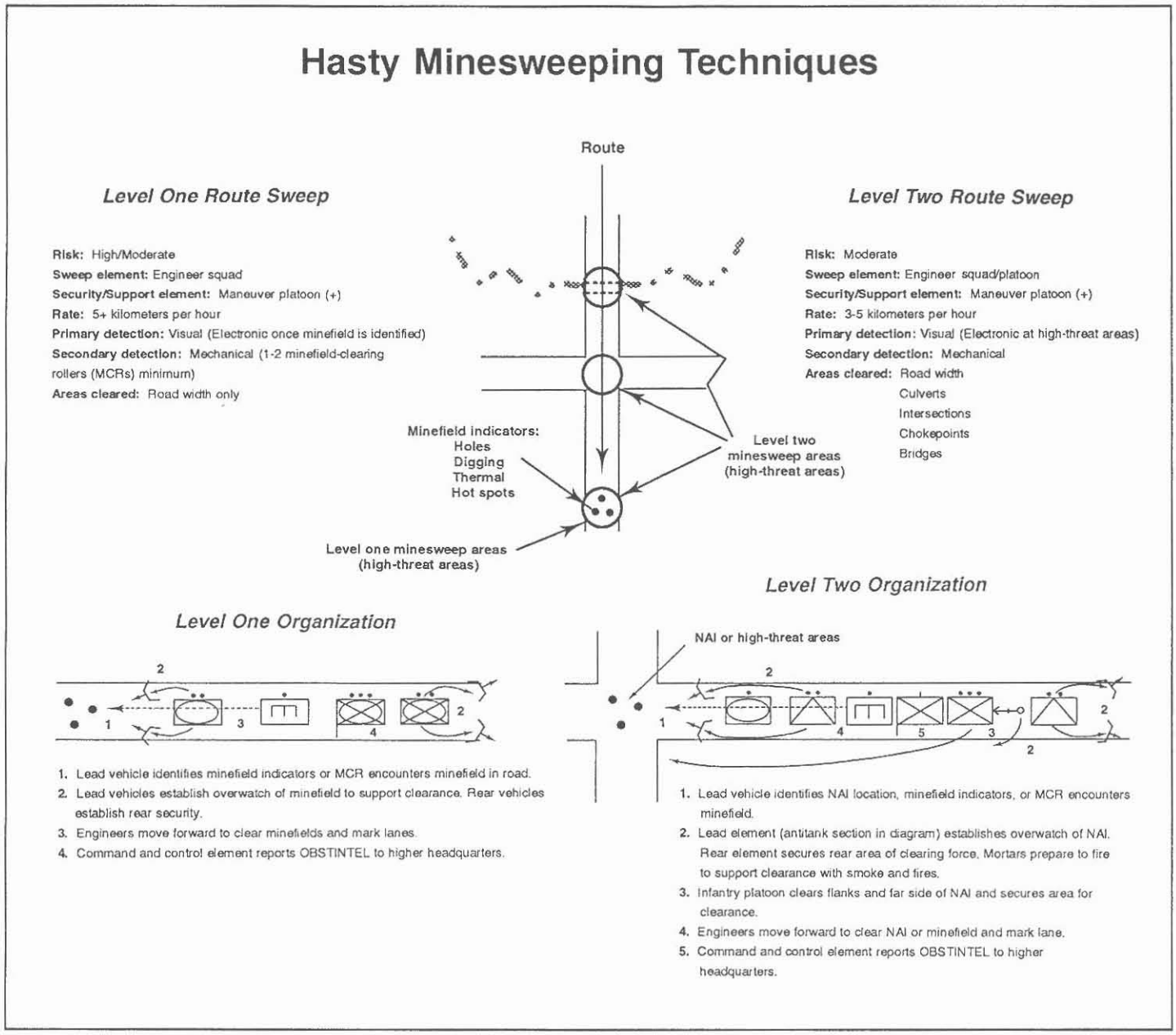

Figure 3

The combat clearance method is ideal for light forces because it allows maximum surprise and concealment. This method focuses the task force on opening and securing a route for follow-on forces and moving into the countryside to find the enemy.

Combat Route-Clearance Method (Figure 2). This method combines the complete route-clearance capabilities of the linear method with the security and surprise elements of the combat clearance method. It is a two-phased, force-intensive operation and may require a battalion-sized element, depending on the length of the route. First, identified high-threat areas are targeted, secured, and cleared of obstacles and enemy forces before a sweep team moves. The sweep team then travels down the road and clears obstacles missed or not identified during the IPB/EBA process. The advantage of this method is that the task force commander immediately secures his MSRs and then finds the enemy, confident that his MSRs are relatively safe.

Route-Sweep Techniques

Current doctrine prescribes two minesweeping techniques: hasty and deliberate. These techniques should comprise the conceptual backbone of any mine-clearing operation. The hasty method relies on speed while the deliberate method relies on thoroughness. A hasty sweep over a 6-kilometer road takes from 1 to 2 hours (3 to 5 kilometers per hour); a deliberate sweep takes from 2 to 6 hours

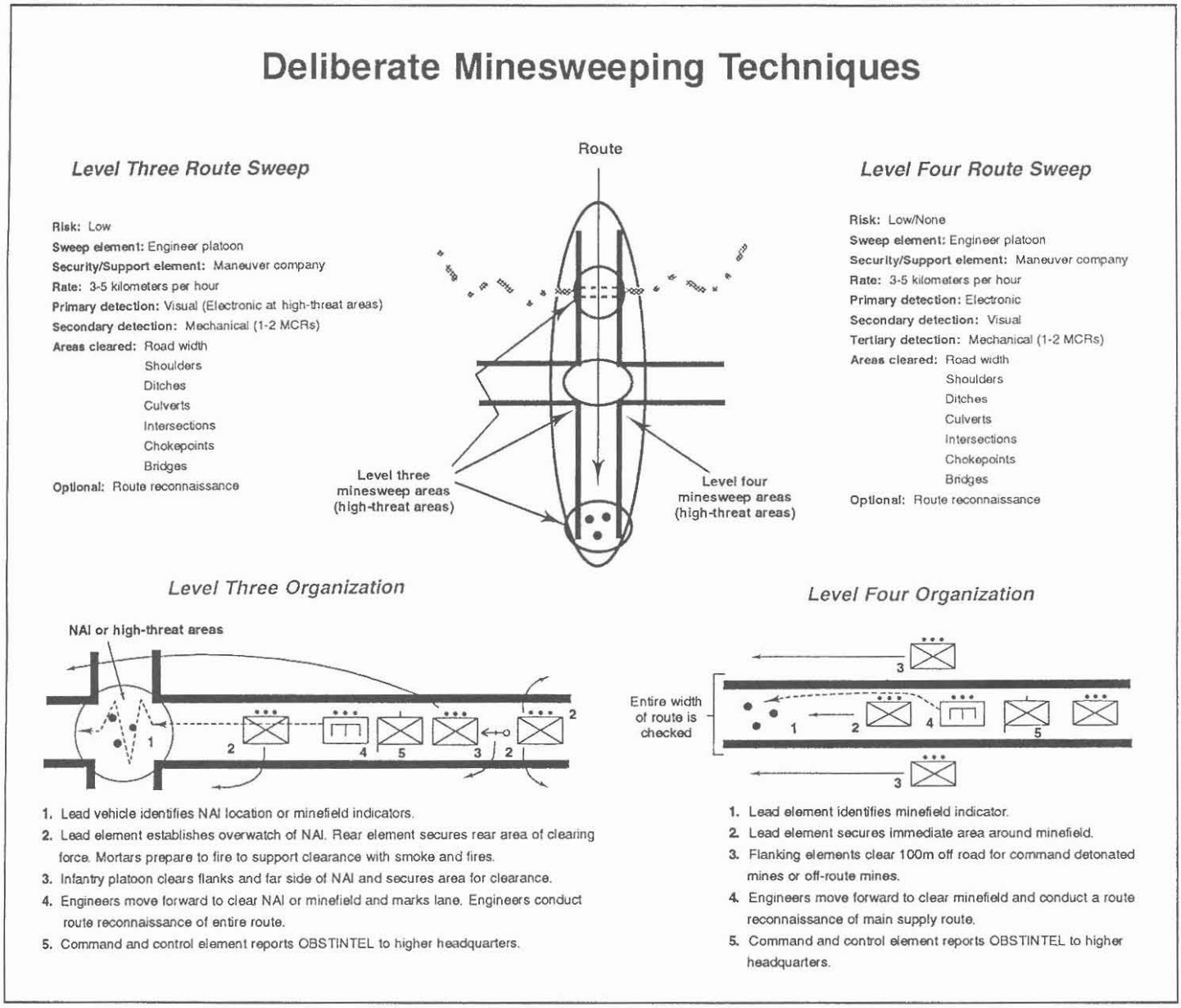

Figure 4

(1 to 3 kilometers per hour). Speed has a direct correlation with thoroughness in minesweeping.

Significant differences between these techniques are not described sufficiently in doctrine. Consequently, units experience problems in planning and executing route-clearance missions. Commanders and sweeping units should conduct route-sweep operations in four levels to reduce risks and ensure success. Levels one and two are modifications of a hasty mine sweep (Figure 3); levels three and four are modifications of a deliberate mine sweep (Figure 4). These techniques are used when conducting a linear route clearance or a combat route clearance. Sweep efforts are categorized by seven criteria:

- METT-T.
- Risk to traffic during and after clearance operations.
- Sweep rate.
- Task organization for the sweep.
- Security and support elements.
- Priority of detection method.
- Route areas checked.

These criteria provide enough information to communicate the route status after a sweep team has conducted its mission.

Level One (Figure 3). This is the fastest and most risky type of route sweep. It is ideal for an armored/mechanized team. The sweep relies primarily on visual detection, using thermal or infrared sights or the naked eye for mine identification. It is followed immediately by a secondary, mechanical detection system such as mine-clearing rollers (MCRs).

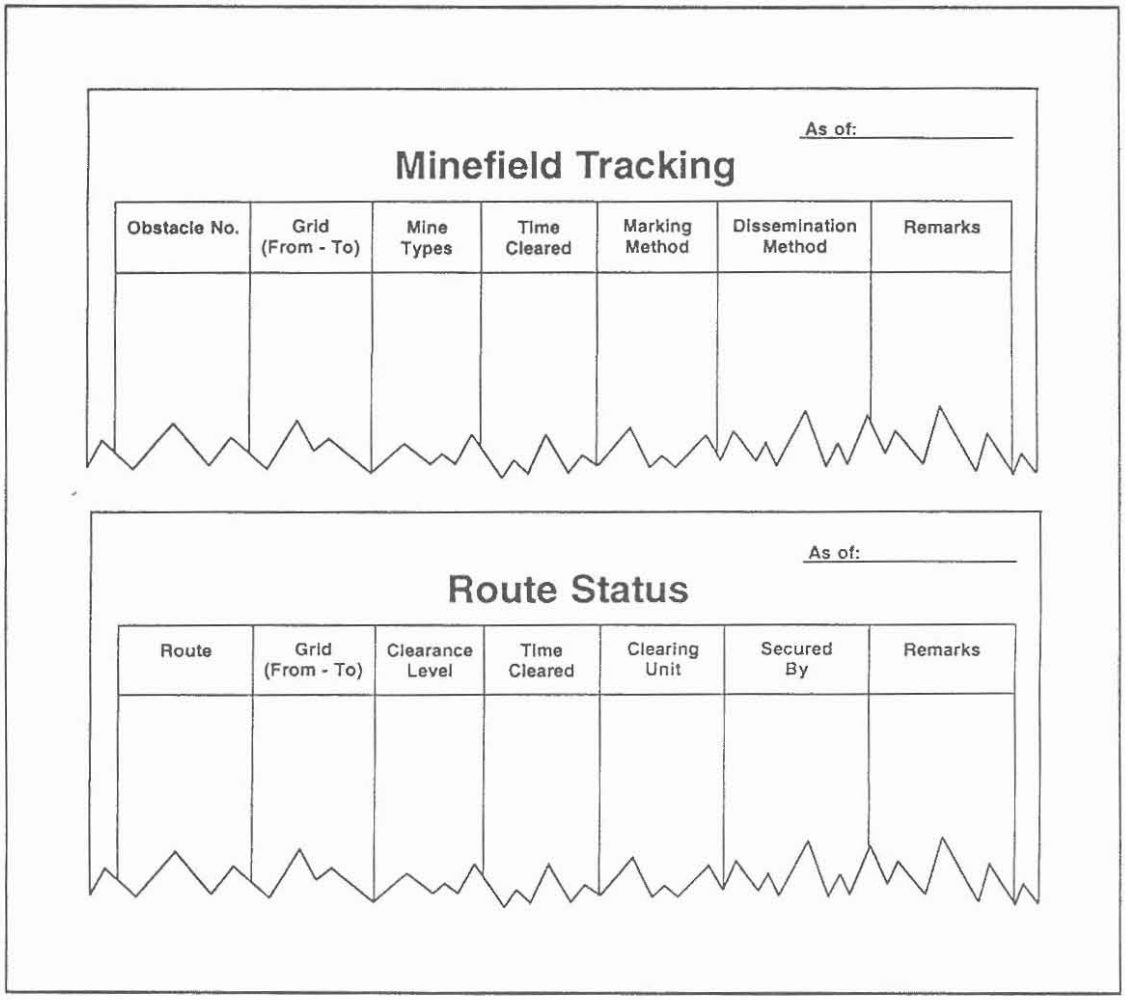

Figure 5

The rollers are only effective on fairly flat surfaces and, when used against magnetic or seismic mines, the MCR's dogbone must be modified to avoid straddling mines. The sweep team is a squad-sized or larger element that is task organized with mine detectors, demolitions, and a vehicle-mounted mechanical detection device (see FM 20-32, Chapter 10). The sweep team looks for minefields on the road width of a route. Security and support teams consist of a maneuver platoon to provide overwatching fire (see Figure 3).

The primary objective of a level one sweep is speed, with the sweep team moving at 5 to 8 miles per hour. It is similar to the in-stride breach method when encountering minefields. The sweep team identifies immediate risks to traffic, neutralizes those risks, and continues on with the mission. If mine rollers are not available, a sandbagged 2 1/2-ton truck driven backwards can be used for a level one sweep (see FM 5-34, *Engineer Field Data*), but only as a last resort. In this situation, the mine rollers are only a means of detection, not breaching. Mine rakes or plows are not satisfactory substitutes because they destroy road surfaces.

Level Two (Figure 3). A level two sweep uses electronic measures as the primary detection method in high threat areas. These areas include intersections, chokepoints, and areas within 10 meters of woodlines. A level two sweep employs more caution and forces the unit to update the IPB before beginning the mission. This level of operation employs a company team for security and command and control (see Figure 3). Dismounted forces clear and secure the flanks and the far side of an identified minefield, while an engineer squad clears the road area.

Level Three (Figure 4). A level three sweep is more in-depth and more time consuming. The sweep team may be either mounted or dismounted, but it must examine the entire width of the route, including the shoulders and ditches. This technique ensures that follow-on forces are protected if they are forced to the side of the road. The security and support element also moves mounted or dismounted to provide rapid response and security (see Figure 4). The sweep team provides a route reconnaissance report that updates current maps and that further identifies high-threat areas. Staffs gain valuable information from this report for future operations.

"...well-trained units will always remain the foundation of U.S. Army route-clearance operations."

Level Four (Figure 4). A level four sweep is very time-consuming. It relies on visual and electronic means for clearance. The platoon-sized sweep team is dismounted to focus attention on the entire length of the route. The company-sized security element clears and secures the flanks and in front of the sweep team (at least 100 meters in each direction in forested areas) (see Figure 4). This clears the area of off-route and command-detonated mines and allows the team to focus solely on the route. MCRs are used to proof the route after the sweep team passes through the area. Level four sweeps include route and area reconnaissance. This sweep is used when thoroughness and security, not speed, are critical to the mission.

Battle Tracking

Information and its dissemination are key to battlefield management. Failure to report and battle track minefields and route-clearance operations throughout the area of operations are common shortfalls at the JRTC. A successful technique used by one unit to track enemy minefields at the JRTC was to prominently post a minefield chart and overlay in the TOC that depicted both enemy and friendly mines and obstacles. Unit personnel posted known and suspected enemy minefield locations, types of mines, marking method, time cleared, and remarks. As information was reported, the S2 changed the chart to reflect the time of the update, the receiver of the information, and the obstacle numbers (see Figure 5). A similar, but separate, method should be used to track route-clearance status (see Figure 5). Battle-tracked information should be maintained in both the TOC and the combat trains command post and then distributed to subordinate units, especially combat service support units.The engineer should analyze the information and provide the S2 and S3 with—

- Time the enemy requires to emplace mines.
- Specific enemy mine capabilities.
- Estimates of the time and assets required to clear enemy mines on the route.

The S2 should determine—

- When the enemy may reseed minefields.
- Possible locations of enemy mine caches.

The S3 disseminates this information to all units throughout the AO. The S3 should also determine—

- Air defense artillery requirements to cover enemy aerial resupply points.
- Surveillance requirements for targeting enemy minefields.
- Potential sites for ambushes around suspected enemy minefields.
- Ground force requirements to clear the area of enemy mines or to locate enemy mine caches.
- Movement-control requirements on routes and notification procedures when the area is cleared.

Experience at the JRTC shows that units consistently lose the initiative because they haven't conducted sufficient combined arms route-clearance training at their home station. When units conduct a route clearance, they go straight down the road, even when a sweep team is on-hand. The U.S. Army's ability to conduct countermine warfare and to open routes is handicapped by the lack of detailed doctrine and technology. Until countermine technology catches up, proficiency in execution must make up the difference. Even with improved technology, well-trained units will always remain the foundation of U.S. Army route-clearance operations.

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